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ARCHIVES OF PEDIATRICS

A MONTHLY DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN

JOHN FITCH LANDON, M.D., Editor

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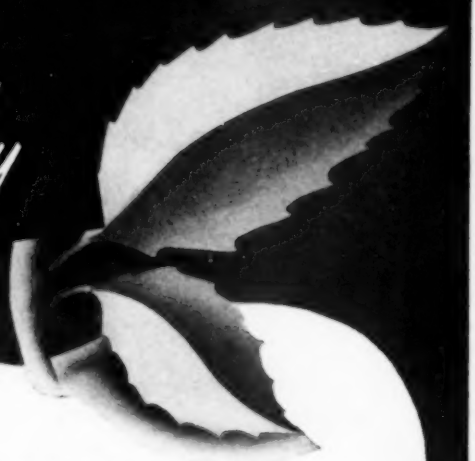

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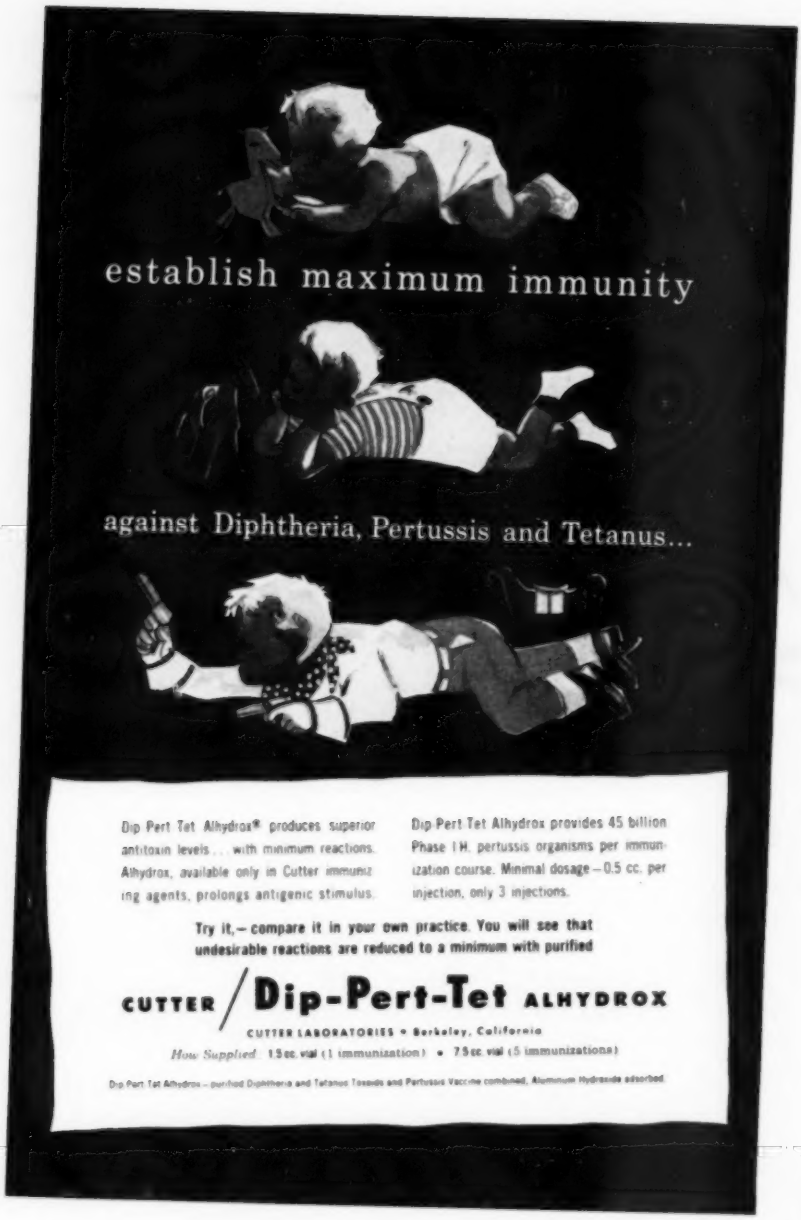
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X-RAY THERAPY OF MONGOLISM*

IRA I. KAPLAN, M.D., F.A.C.R.
New York.

According to Clemens E. Benda, mongolism is the most frequent growth disorder in infancy, and ten times more frequent than cretinism in America. He states that of the approximate 8,650 daily births in the United States, at least 17 are probably mongoloids.

Benda states that overwhelming clinical and pathological data provides evidence that mongolism is a congenital hypopituitarism. Mongolism is a polyglandular deficiency in which all glands that depend in their function upon the tropic hormones of the pituitary are at fault.

The mongoloid's pituitary is hypoplastic or damaged in fetal life, and the mongoloid is born with a pituitary deficiency which he is never able to overcome.

Benda also states that x-ray examination helps in the diagnosis and determination of the amount of retardation present. It is not in the sella turcica that abnormality is noted, but as Gordon and Bell, and Benda have found, other important abnormalities in the skull bones are seen if carefully looked for, which give evidence of mongolism.

Since mongolism is evidently a prenatal condition many preventative measures may be utilized to attempt to limit the possibility of mongolism. What to do for the child born with mongolism is more difficult.

*From the Radiation Therapy Department of Bellevue Hospital and with the courteous cooperatoin of Dr. H. H. Berman, Director, and Dr. Martin Lazar, Assistant Director of the Willowbrook State School of the New York State Department of Mental Hygiene.

Read at the Eastern Conference of Radiologists, New York City, March 28, 1952.

Director, Radiation Therapy Department, Bellevue Hospital; Clinical Professor of Radiology, New York University Medical College, New York (Ira I. Kaplan, M.D.).

During the past 27 years I have been treating married women with x-ray therapy for the condition of sterility. The best results have been achieved in cases wherein the x-rays were directed through the ovaries and the pituitary.

Except in one instance, over 200 normal children have been born to women treated by me with x-ray therapy for relief of sterility.

Because of this success in restoring regular menstruation and normal fertility in sterile married women, Benda inquires why similar therapy through the pituitary may not be beneficial in the treatment of mongoloid children.

Whether or not x-ray therapy is a stimulating activator of the pituitary of sterile women is still not determined. In a number of cases, where irradiation was administered to the pituitary alone, fertility was not established, and only after additional irradiation was administered to the ovaries in these cases, did response follow with relief of sterility.

In 1928, Wolfgang Freiherr Von Wieser reported on his experiences in his article, "Rontgentherapie des Schwachsinnes bei Kindern" describing some favorable responses in a number of cases of mongolism treated by him with irradiation to the pituitary and other endocrine glands. Little if any work along similar lines has been done since then.

Benda's suggestion, therefore, that since x-ray therapy has proven of value in the treatment of female infertility, why not attempt it in the treatment of mongolism, was provocative and instigated my interest and the administration of x-ray treatment in the cases herewith reported.

It might be said, at this time, that treatment to be most effective should be instituted as early in life as possible, when pituitary controllable conditions are not too far advanced along abnormal developmental status.

Whether or not the action of the x-rays is stimulative or repressive is as yet not determinable. From our experience in treating acromeglia with intensive doses of x-rays and the equally effective results achieved in the treatment of pituitary adenomas, one may be inclined to believe the action of the x-ray to be solely repressive. Yet in no case has the complete destruction of the pituitary followed therapeutic irradiation. It may be hard to conceive that the dosage of x-rays employed in the treatment of female sterility is a

pituitary depressant. The responsiveness to this form of irradiation suggests rather an activating effect.

It is with this thought in mind that we believe the responsiveness of the pituitary in mongoloid children to irradiation can be explained. The x-ray seems to change in some way the hypopituitarism to normal or near normal activity of the pituitary.

Our first experience in this work followed the request for irradiation, in December 1950, of keloids in scars following surgery for knock-knees in a young girl, 14 years of age.

The patient was a white oversized girl of an Italian family, one of 10 children. Right from birth she exhibited mental retardation, and at 14 years of age was unable to talk or understand when spoken to. She was well nourished and stout. She had been in a mental institution without improvement, had never been to school and had as yet not menstruated. She could not care for herself hygienically. Psychologic classification was mongolism. Roentgenogram of the sella turcica showed no abnormality. Permission for treatment having been obtained from the mother, x-ray therapy was administered to the pituitary through the anterior central forehead and right and left temporal ports, 75 r was given to each at each session, three times per week for six treatments.

One month later, the family reported the patient now could feed herself to some extent and no longer spilled food in doing so. She appeared to understand some of the conversation addressed to her and was able to reply in simple sentences. She was able to partially dress herself and put on shoes and stockings, not previously achieved. Mentality, however, was still quite retarded.

A second course of x-ray therapy was instituted in February 1951. Following treatment the menarche occurred normally, but while she seemed to comprehend what I said to her, and the family reported improvement in her actions and reactions at home, I did not believe there was sufficient mental improvement. A third course of x-ray therapy was instituted in May 1951.

In October 1951, she was found to be in general good health, was stouter, menstruation had occurred regularly at monthly intervals. She seemed brighter, smiled when spoken to, appeared to have improved ability to talk, and shook hands when requested to do so. She could comprehend and say hello and good-bye.

Although this case was not as spectacularly improved as we

had hoped, the response gave us courage to continue this work. We believed that a more successful response might be achieved by treating a younger group of children.

Getting child patients for this work presented many difficulties, not the least of which were parental, guardian and court permission. Hygienic care and protection of these children during transportation and treatment was another handicap. With the friendly cooperation of Drs. Berman and Lazar of the Willowbrook State School of the New York State Department of Mental Hygiene, we were provided with the opportunity of treating seven definitely proven mongoloid type children, ranging in age from four to seven years, four girls and three boys, on October 22, 1951, with the following mental status*:

F. C. Age 5 years. Female. Full term spontaneous delivery—functions on imbecile level—is not toilet-trained—cannot dress—eats well with help.

R. C. Age 5 years. Male. Functions on upper imbecile level—active—eats well. It not toilet-trained and cannot dress.

M. E. Age 6 years. Female. Functioning at imbecile level. Eats by herself. Cannot dress—is not toilet-trained.

A. F. Age 4 years. Female. Rather dull—appetite poor—requires help in feeding. Cannot dress—is not toilet-trained. Functions on imbecile level.

I. H. Age 7 years. Female. Functions on a moron level. Talks well—is toilet-trained—eats by herself—requires some help in dressing.

P. M. Age 4 years. Male. Functions on an upper imbecile level. Cannot feed himself—does not talk—is not toilet-trained—cannot dress.

T. S. Age 5 years. Male. Eats well—cannot dress—is not toilet-trained. Functions on imbecile level.

High voltage x-ray therapy was administered to the pituitary through 3 ports, 5 cm. in diameter, a frontal and a right and left temporal. A dose of 100 r, measured in air, was given to each port at each treatment at weekly intervals for four weeks.

In one case, M. E., because of an associated spastic condition and an apparent greater imbecility, a fifth treatment was administered.

*Since this report was prepared, eight additional mongoloid children have been referred from the Willowbrook State School for treatment.

Observations following treatment of these seven children are too early to demonstrate definite improvement. Up to the present, Drs. Berman and Lazar report they have noted no appreciable response to treatment. Just how long a period is required to note definite changes in these children is still undetermined, and, since this method of treatment has been carried on only a short period of time, sufficient period of observation has not been had in which to note definite character responsiveness.

It was therefore deemed advisable to administer a second course of treatment to these children and this was carried out during January and February 1952, that is about three months following the first series. In this second course only 50 r was administered to each area per treatment, and the area size changed to 3 cm. Another, third course of treatment may be given in 6-12 weeks after the second should it be deemed advisable, at that time depending upon the results noted then. Our impression of results will of course be guided by the expert opinion of Drs. Berman and Lazar, under whose jurisdiction and care is this group of patients.

In January 1952 two other cases from the Bellevue Hospital Service were admitted for treatment.

Case 1, because of her age, 6 months, intelligence testing was not satisfactory. The child, however, has all the particular features of the mongoloid type, thin drawn white skin over an elongated skull with bulging eyes in typical slant oval orbits, hyperteleovision. The bridge of the nose is depressed and the hands are square with short fifth fingers. The neurologic tests demonstrate the symptoms usually noted with mongoloid children.

Case 2. M. A. L., female, age 18 months, first born child, who from birth was noticed to be "backward." She sat up with assistance at 10 months and stood at 14 months, but is still, at 18 months, unable to walk. She has the typical mongoloid appearance, hyperteleovision, depressed bridge of nose, ovoid eyes, wide square hands with short fifth fingers. She has 2 upper and 2 lower teeth, makes sounds but no words. Uncoordinated movements, toilet-training has been only partly successful.

Treatment in these cases was similar to that employed in the other group, except for the dosage, which was 50 r administered to each area per treatment in Case 1 and 75 r per treatment in Case 2.

Of course it is too soon to note definite improvement changes in these cases.

As more patients are made available for this form of therapy further observations will be reported.

This method of x-ray treatment is harmless and painless, and no untoward results have been noted from it.

This therapeutic procedure is new and definite evaluation of results cannot as yet be made. Any changes noted of course have to be interpreted by qualified physicians trained in child mental conditions. The ultimate evaluation of this form of therapeusis, of course, will require a longer period of observation than available at present.

Should this method of therapeusis for mongolism prove effective, it will be of great social and civic benefit. If such cases can be successfully treated shortly after birth and recognition, the family and the State would be saved the large expense associated with the custodial care of the mongoloid child. The successful changing of a mental defective into one of normalcy would well warrant the small cost for this x-ray therapy required to achieve such results.

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COMPARATIVE VALUE OF A SYRUP OF DEHYDRATED BANANA AS A CARBOHYDRATE FOR INFANT FEEDING*

ROBERT J. WALDRON, M.D.
AND
JOSEPH H. FRIES, M.D.
Brooklyn.

It is customary today to supplement or modify the milk formula in the routine artificial feeding of infants. Most of these modifiers are carbohydrates of a dextrin-maltose-dextrose mixture derived from cornstarch,[1-3] although lactose,[4-6] cane sugar,[7] molasses and honey[8] have been used. Since it is obvious that additional nutrients, for example, minerals, vitamins and salts are necessary for the proper growth and development of the infant, naturally contained combinations of these substances in a carbohydrate modifier have been sought.

Pearce,[9] in 1935, described the use of banana sugar, which he felt answered the requirement for carbohydrate, salts and minerals. In 1950, Wolman et al.[10] described the advantages of an apple syrup as a naturally fortified milk supplement.

This communication attempts to evaluate the comparative value of dehydrated banana in combination with a syrup consisting of sucrose, fructose and dextrose as a milk modifier for newborn infants and children.

MATERIALS AND SUBJECTS

Two hundred thirty-seven infants in the wards of the Kings County Hospital, Brooklyn, New York, were employed in this study. These were divided into study and control groups as described below.

The milk modifier utilized in the study groups contained dehydrated banana, 1 part to 1.8 parts of a syrup consisting of sucrose (40 per cent), fructose (20 per cent), dextrose (20 per cent), and water (20 per cent).*

Analysis of banana syrup, as determined by the method of the Association of Official Agricultural Chemists (Sixth Edition, 1945) is as follows:

*From the Department of Pediatrics, Kings County Hospital, Brooklyn, N. Y. Service of Kenneth G. Jennings, M.D.
*The banana syrup utilized in this study was prepared by Kannengiesser and Company, New York City.

	Per cent	
Sucrose	29.3	
Fructose	27.1	
Dextrose	16.4	
Starch	2.1	
Phosphorus	0.04	(0.04 gm. per 100 grams)
Magnesium	0.17	(0.17 gm. per 100 grams)
Sodium	0.05	(0.05 gm. per 100 grams)
Iron	0.16	(0.16 gm. per 100 grams)
Potassium	0.86	
Protein (N x 6.25)	1.1	
Fat	0.1	
Ash	0.3	
Moisture	23.3	
Vitamin A	26.1	U. per 100 grams
Thiamin (B_1)	0.011	mg. per 100 grams
Riboflavin (B_2)	0.030	mg. per 100 grams
Vitamin C	0.830	mg. per 100 grams
Crude fibre	0.5	
Calories per tablespoon	46.6	
Calories per fluid ounce	91.9	
Calories per ml	3.1	
Ph	4.45	
Bacteriologic culture (Coliform group, molds, yeasts and anerobic bacteria)	Negative	

To establish the tolerance of infants for this type of carbohydrate mixture, a group of six healthy infants under six months of age, who were "boarders" at this institution, were observed for seven to fourteen days, during which time they were fed an evaporated milk and water formula to which had been added the banana syrup. Careful observation convinced the authors that the syrup was well tolerated and without untoward effects, even when taken in large amounts.

METHOD

A total of 203 healthy, full-term, newborn infants, ranging in weight from 5 pounds 8 ounces (2640 grams) to 9 pounds 14 ounces (4620 grams) were employed in this study.

Those infants, whom it was deemed expedient to feed artificially, were chosen alternately to receive a banana syrup formula (85 infants) and a dextrin-maltose-dextrose formula (82 infants). In both instances the total caloric and water requirements of a newborn infant were calculated, and an adequate formula devised. A third group of 36 breast fed infants were used as an additional control group.

As many variables as possible were eliminated. The infants

were weighed in the nursery at birth, and on alternate days until discharged from the nursery after the sixth day. Both formulae were prepared in the same manner and sterilized by the terminal method (autoclaved). The nursing staff was suitably instructed; the feedings, weight and stools were charted on special forms. As far as possible, the same nurse usually weighed the baby during its hospital stay.

Following the pediatric routine of the hospital, 12 hours after birth both groups of artificially fed infants received one ounce (30 ml.) of a 5 per cent solution of dextrose every three hours for 36 hours. Subsequently, one ounce (30 ml.) of a half-strength formula was given every four hours for three feedings; thereafter,

TABLE 1. *Average Daily Weight Loss (203 Newborn Infants)*

Type of Feeding	Birth Weight						No. of Cases	Days After Birth (Loss in Ounces)					
	lbs.	oz.		lbs.	oz.			1	2	3	4	5	6
Breast Milk	5	8	to	7	0		15	2.8	4.6	6.6	3.2	5.0	1.0
	7	0	to	8	0		14	5.7	7.9	8.4	6.0	4.4	3.0
	8	0	to	9	12		7	4.0	9.0	10.0	8.4	7.6	4.8
		Total	.....				36	4.1	6.7	7.3	5.5	5.2	2.6
Formula with Banana Syrup	5	0	to	7	0		37	4.0	6.0	5.6	4.2	3.8	2.7
	7	0	to	8	0		34	4.0	6.7	7.2	6.3	6.0	4.3
	8	0	to	9	14		14	3.6	9.0	9.2	9.8	8.7	10.0
		Total	.....				85	3.9	6.8	6.8	6.0	5.7	4.1
Standard Formula with Dextrin-Maltose-Dextrose	5	8	to	7	0		32	3.4	5.9	6.2	5.6	4.3	5.1
	7	0	to	8	0		32	4.4	7.3	8.2	6.3	5.6	6.5
	8	0	to	9	14		18	5.7	8.2	9.9	6.0	7.6	4.6
		Total	.....				82	4.3	6.8	7.7	5.9	5.4	5.6

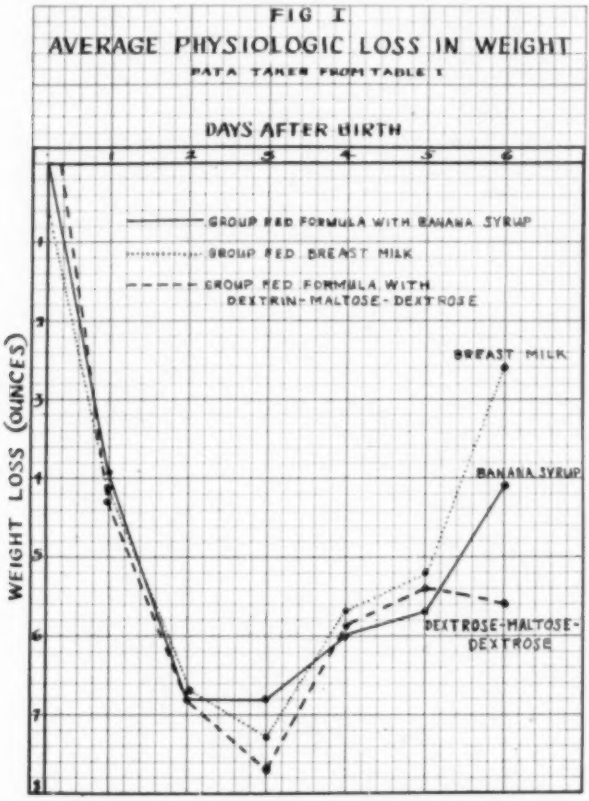
one ounce of a full-strength formula every four hours for three feedings; and subsequently, two or more ounces (60 ml.), every four hours until the date of discharge.

The full-strength formula contained seven ounces (210 ml.) of evaporated milk, fifteen ounces (450 ml.) of boiled water and either two tablespoons (30 gm.; 60 calories) of the dextrin-maltose-dextrose mixture; or one and one-half tablespoons (22.5 ml.; 60 calories) of banana syrup.

The breast fed infants, following a preliminary starvation interval of eight hours, were placed on the breast every four hours.

A 5 per cent solution of dextrose in water was given between feedings when required.

In each of the three groups of newborn infants, an approximately equal weight loss, the expected physiologic loss, was observed during the first three days. At the end of the third day, the breast fed infants averaged a loss of 7.3 ounces; and the other control group averaged a loss of 7 ounces; whereas the group fed banana syrup averaged a loss of 6.8 ounces.



At the end of the sixth day, the best gains in weight were averaged by the breast fed infants who returned to 2.6 ounces less than their birth weight; the group fed milk formula with banana syrup followed, averaging 4.1 ounces less than their birth weight; and the least gains were observed with the group fed dextrin-

maltose-dextrose, averaging 5.6 ounces less than birth weight. (Table 1 and Fig. 1.)

It was observed that the formula containing banana syrup was willingly ingested and well tolerated. In general, it seemed that the stools of the group fed banana syrup were of better consistency than were those of the group fed the dextrin-maltose-dextrose mixture, and there was no instance of diarrhea, although in the control group, occasional loose stools occurred.

SICK INFANTS

We were also interested in evaluating the use of the milk formula containing banana syrup, as the carbohydrate, in the feeding of sick infants. Twenty-eight such infants under five months of age, successively admitted to the wards, were observed for a minimum of six to a maximum of fifty-four days. These infants were ill with respiratory infections, diseases of the central nervous system, metabolic diseases, and congenital malformations of varying degree and severity (Table 2). The manner in which these infants were studied was the same as that employed in the newborn nursery.

TABLE 2. *Illnesses Included in Study of Sick Patients (28 Subjects)*

Diagnosis	Number of Cases
Upper respiratory infection	9
Recurrent vomiting	4
Pneumonia	2
Micrognathia and cleft palate	1
Hare lip with cleft palate	1
Acute catarrhal otitis media	1
Lead poisoning	1
Meningitis	1
Subdural hematoma	1
Acute bronchitis	1
Renal acidosis	1
Congenital atresia of bile ducts	1
Erythroblastosis fetalis	1
Congenital syphilis	1
Pneumothorax with interstitial emphysema	1
Adiposa sclerosa neonatorum	1

The infants accepted the formula well and, in spite of their illness, gained consistently in weight. There was no excessive vomiting or other unusual gastro-intestinal disturbance.

DISCUSSION

It must be pointed out that for the purpose of a controlled experiment, it was necessary to limit the length of observation to the length of stay in the nursery—in this institution only six days. Beyond that time, the variables of added foods, vitamins, changes of environment and parental cooperation distort accurate evaluation of the nutritional value of the diet.

The neonatal period, with its limitations of foods and environment, is particularly suitable for the controlled testing of the efficacy of a carbohydrate. Since the acquisition of weight at this age depends almost entirely on the intake of milk, water and carbohydrate, a variation in the carbohydrate alone can reflect itself in the weight curve. In this study of artificial formulae, in which water and milk intakes were equivalent, and other variables were controlled, it would seem reasonable to attribute the variations in the weight curve to the carbohydrates.

Banana syrup provides the same advantages as do several other standard milk modifiers, of containing several different carbohydrates. These, having different conversion rates into dextrose, facilitate a gradual, continuous absorption of dextrose into the blood stream.[11]

Our findings that the normal newborn infant thrives best on breast milk is in accordance with frequently recorded observations.[12]

The better maintenance of weight in the study group on banana syrup, over that of the group on standard formula, may be because banana sugars are more easily assimilated[13], or because of the presence of a small amount of natural protein in the syrup (1.1 per cent), which may spare the body protein in the normal metabolism of the infant; or possibly because of the natural vitamins and minerals in the dehydrated banana contained in the syrup.

The occurrence of well-formed stools observed in infants of the study groups fed with banana carbohydrate was noteworthy. The anti-diarrheic effect of the banana in the syrup would seem to be sufficient to neutralize the laxative effect of the sucrose present in the syrup vehicle.

Our experience with the anti-diarrheal value of dehydrated banana in the care of these newborn and sick infants, plus our

previous studies on its value in the specific treatment of infantile diarrhea,[14] suggest its use in the future for steatorrhea and celiac symptoms.

SUMMARY AND CONCLUSIONS

1. Two hundred three newborn infants were observed for their nutritional response to breast feeding and to formulae containing either dextrin-maltose-dextrose or banana syrup as a milk modifier.

2. The infants in the group fed formula with banana syrup seemed to thrive better than did those fed dextrin-maltose-dextrose. Their physiologic weight loss was less. However, the breast fed infants demonstrated the least physiologic loss of weight.

3. The formula containing banana syrup was readily accepted and well tolerated, and seemed to encourage the formation of normal stools.

4. Banana syrup as a carbohydrate supplement also demonstrated a usefulness in the dietetic management of 28 unselected sick infants under five months of age.

5. Banana syrup, on the basis of these observations, has clinical value in the feeding of newborn infants or of sick children.

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ILEO-ILEAL INTUSSUSCEPTION ASSOCIATED WITH HENOCH-SCHONLEIN'S PURPURA*

Report of Case with Discussion

Norman M. Brust, M.D.
New York.

Since Henoch, in 1874, described his classical cases of purpura associated with vomiting, colic, intestinal hemorrhage and sometimes effusion into the joints, the syndrome has not been very common. Far less common, in fact, are those cases associated with a complicating intussusception.

But it is increasingly important for the clinician to be constantly aware of this syndrome and to be on guard for the occurrence of a complicating intussusception so that disaster may be prevented.

CASE REPORT

R.G., a two-year-old white female, was admitted to Queens General Hospital for the first time on March 20, 1951 with the chief complaint of fever, purpuric rash, vomiting, swollen joints and periorbital edema of one week's duration.

One month prior to admission, the child had a mild attack of upper respiratory infection with sore throat and cervical adenitis for which she was treated with penicillin and aspirin. The periorbital edema was first noticed one week prior to admission, followed in one day by swelling, redness and warmth of both knee joints. Purpuric spots gradually made their appearance over the arms and legs.

Four days prior to admission, the child had become increasingly irritable and had vomited frequently. Two days prior to admission, the child began to appear lethargic and would touch her head and scream when handled. The mother had noticed that the child's urine had been abnormally dark for the past week and that she had been constipated for the past few days, although there was a small normal bowel movement on the day of admission.

The child's past history revealed that from one to nine months, she had occasional intermittent diarrhea and had been treated for

*From the Pediatric Service of Queens General Hospital, New York City, Dr. Henry A. Reisman, Director. The author extends his appreciation to Dr. Reisman for allowing him to present this case.
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celiac syndrome with special diet. Since nine months of age, she had been free of symptoms and has been on a regular diet. Approximately one year prior to admission, the child had edema of face and eyes, which was attributed to an insect bite. The child had a mild case of whooping cough at one year of age. The past history is otherwise non-contributory. The family history does not reveal any similar condition or any allergy.

On physical examination, the child appeared to be well developed, well nourished with puffy eyelids and purpuric rash on face, extremities and buttocks. The knee joints appeared slightly swollen and edema was present on the hands and feet. The positive findings were moderate cervical adenopathy, injected pharynx with large tonsils and markedly tender abdomen with a suggestion of a mass in the right upper quadrant.

Blood pressure was 135/90, pulse rate 130 and respirations 18.

The laboratory reports were as follows: Hemoglobin 9.7 gms. per 100 cc., R.B.C. 3.3 million per cm., W.B.C. 12,300, polys 72 per cent, myelos 2, lymphs 24 per cent, eosins O. Platelet count normal, 260,000; Wassermann, negative; total protein, 5.8; albumin 4.3; globulin 1.5; sugar 90 mgm.%; urea N.9. Rumpel-Leede, negative.

Catheterized urine on admission, March 20, 1951, showed R.B.C. 20-30 per high power field; W.B.C. 1-2 per high power field; albumin 1+; sugar 0; acetone 4+. Catheterized urine on the following day, March 21, 1951, showed R.B.C. none; WBC none; albumin none; acetone 1+.

Stool culture was repeatedly negative for enteric pathogens. Throat showed Strep. viridans; N. catarrhalis; few hemolytic strep. Bone marrow—hyperplastic, no abnormal cells.

On March 21, 1951, the day after admission, the child received a low water enema with return of hard formed stools mixed with bright red blood.

On March 22, 1951, the child received 250 cc. of blood and that night she passed approximately 50 cc. of dark red blood from the rectum.

The blood pressure at this time was 90/60, pulse rate 115 and her color was good. On examination of the abdomen it appeared moderately distended and tympanitic. No mass was palpable. At

completion of the examination, the child vomited greenish fecal smelling material which was benzidine negative. Wagensteen suction was started and subcutaneious fluids were given.

On March 23, 1951, the child continued to pass red blood from rectum. Abdomen appeared soft, distended and tender. No masses were palpable at this time. The child appeared irritable. The The blood pressure was 110/80, pulse rate 110, temperature 100.6° F., CO_2 combining power 50 vol. per cent.

Flat plate x-ray of abdomen revealed a moderate amount of distention, involving the small intestines where fluid levels were visible. No air was seen in the large intestine or rectum. Barium colon study was done and was negative.

That evening, on examination of the abdomen, an indefinite mass was palpable in the right lower quadrant.

On March 24, 1951, the patient appeared lethargic. The temperature was 101.6° F. The abdomen was tender and a definite discrete mobile mass was palpable in the right lower quadrant. No bowel sounds were heard on auscultation. The child vomited immediately after being given a sip of water.

Laparotomy was performed and revealed an irreducible ileo-ileal intussusception, involving approximately six inches of ileum with associated gangrene and hemorrhagic ulcers of the wall. Sixteen inches of ileum were resected and a lateral anastomosis performed.

On March 25, 1951, temperature was 102° F., pulse rate 104. Child was irritable but general condition was good. Color was good and abdomen was soft. Nothing was passed through rectum. Wagensteen suction returned dark reddish-brown material. The child was placed in an oxygen tent and she was given intravenous aureomycin, 100 mg. diluted with normal saline q.12 H, streptomycin 0.5 mg. 1 M q.12 H, sodium luminal 60 mg. q.6 H and an infusion of 5 per cent glucose in distilled water with added vitamin C and K.

On March 26, the child showed a remarkable recovery. Temperature was 100° F., pulse rate 102 and the child appeared alert. The abdomen was slightly distended but soft. Bowel sounds were present, and the purpuric rash was not as well defined as previously.

The child showed a steady recovery thereafter and was discharged April 2, 1951, one week post-operatve in good condition

DISCUSSION

I believe that in order to become more familiar with cases of this type, a short discussion of Henoch-Schönlein's purpura and the mechanism complicating intussusception, is in order.

Henoch-Schönlein's purpura (anaphylactoid purpura[1-6]), is a non-thrombocytopenic purpura with no associated abnormality of the blood. It is more common in children and young adults than in the older age groups, although no age, sex or race is exempt.

Although the true nature of the condition is unknown, it is believed that the etiological factor is on an allegric basis, but in only a minority of cases has an allergic factor been demonstrated. In some cases, the exciting factor appears to have been bacterial (staphylococcus) or an article of food (chocolate, eggs, etc.). In other cases, hypersensitivity to cold has appeared to be the factor. Bacterial sensitivity is the most common etiological factor[4]. The allergic reaction is compared to the anaphylactic type, hence the associated name, anaphylactoid purpura.

The clinical picture varies from one time to another in the same patient and in different patients. The symptoms and signs may disappear and reappear with variations in extent, intensity and nature. Constitutional symptoms may be present, such as fever and malaise. In various combinations, erythema, urticaria, purpura and edema may be encountered. Necrotic areas may develop and may be followed by ulcers. The skin lesions may appear in crops and may be accompanied by itching and parasthesias. The extremities are the most common location. There may be hemorrhages from mucous membranes. Kidney lesions, similar in nature to those found in the skin, may develop and cause hematuria and temporary disturbance of renal function. There may be concomitant articular symptoms (Schönlein's purpura, purpura rheumatica) and crises of abdominal pain, diarrhea, melena and vomiting (Henoch's type).

The eruption, edema and visceral lesions usually subside in the course of several days but may recur together or independently at intervals of one to six weeks. As the child grows older, the disease becomes milder and usually disappears.

The pathogenesis is an alteration in the permeability of the small blood vessels of the body, associated with perivascular inflamma-

tion. Thus, the various manifestations arise from extravasations of varying proportions of plasma and formed elements of the blood.[3, 4]

The treatment is non-specific, although recently ACTH has been tried with some success.[7]

The aspect of an intussusception complicating the Henoch's type of purpura is interesting. It is believed that Sutherland[15] was the first to call attention to the fact that intussusception may complicate Henoch's purpura. In 1904, he reported a case of a female child, 7 years of age, who had Henoch's purpura, and a complicating gangrenous ileocecal intussusception was not found until necropsy. Lett[16] was the first to perform a laparotomy for intussusception complicating Henoch's purpura. This occurred in 1908 on a 3-year-old male child who died 8 days postoperative from septic peritonitis. Since this time, some interesting cases have been reported, [8, 9, 10, 17, 18] all showing differences to the case in this report.

In the ordinary uncomplicated Henoch's purpura there is an urticarial, serohemorrhagic effusion into the intestinal wall which produces the colicky pain and at times a mass which simulates an intussusception. The extravasation of blood in the intestinal wall causes an interruption of the peristaltic wave due to the local paresis of the bowel wall in the area of the extravasation which allows for the invagination of the intestine proximal to it. It has also been shown that pathology in the lower part of the ileum causes the lymphoid tissue in that location and around the ileocecal valve to swell and almost close the lumen,[28] and it has been thus postulated that this rigid portion of bowel may act as a foreign body which the bowel tries to expel. The result is an invagination into the distal bowel. But Nyborg,[11] Krock and Orum[12], and Drochter[23] consider that this swelling of lymphoid tissue in most instance is only of secondary significance. That is, secondary to the circulation disturbances and infection in the area of the obstructing intussusception. This was further exemplified by the fact that in almost all types of intussusception, regardless of etiology, swollen lymphoid tissues and lymph glands were observed in the ileocecal angle and mesentary at operation.[11]

Regardless of the etiological factor, it is obvious that intussusception can and does complicate Henoch's purpura. Its recognition in these cases is difficult for, as has been described, Henoch's pur-

pura alone, without intussusception, may produce pain, vomiting, expulsion of blood from rectum and a mass, i.e., all the cardinal signs of intussusception. Thus, to be on the safe side, exploratory laparotomy is indicated in all types of Henoch's purpura presenting this syndrome.[8, 9, 10, 11, 14, 15]

COMMENT

In the case presented, it is noted that no definite mass was palpable up to the day of laparotomy. It must be remembered that the position of the mass may vary from one moment to another, and the mobility of the mass varies according to its position in the intestinal canal. The variation in position is greatest in the pure small intestinal intussusception (as in this case) on account of the long mesentary of the small intestine.[19] At times, the tumor may be hidden under the edge of the liver, in the minor pelvis or behind the intestinal loops. In cases where no mass is palpable and intussusception is suspected, examination under anesthesia may enable the mass to be palpated.[8, 11, 19]

As to the character of the bleeding from the rectum, it is noted that this occurs more often in infants than older children,[11] although it may be regarded as almost pathognomonic for intussusception when present. The first evacuation of the bowels after the onset of the intussusception usually contains normal feces which have remained distal to the intussusception. Then, short intervals follow during which nothing is evacuated, per rectum. Later, the pathological process causes a discharge of blood, mucus and serous fluid. In the case presented it was mostly pure blood. It has been reported that the intestinal evacuation in intussusception may have a specific odor.[20]

The survival of cases of intussusception in the presence of gangrene is rare. Only three recoveries were reported by Ladd and Gross (1941)[21] in eighteen cases in which a primary anastamosis was done to deal with this complication. Mikulicz' operation (double enterostomy) produced only seven recoveries in twenty-five cases. Other successful cases have been reported.[22, 23]

SUMMARY

1. A case of gangrenous ileo-ileal intussusception, complicating Henoch-Schönlein's purpura, has been reported. The case pre-

sented the purpuric rash, renal signs, edema, joint effusion and abdominal symptoms that are present in the Henoch-Schönlein's purpura, plus the additional signs of intussusception.

2. The Henoch-Schönlein's purpura syndrome (anaphylactoid purpura) and the mechanism of intussusception in this syndrome has been reviewed.

3. The indefiniteness of the mass and the character of the bleeding in this case has been discussed.

4. A review of the survival after gangrenous intussusception has been made.

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THE EDUCATION OF A HEALTH OFFICER

J. C. Geiger, M.D., Dr. P.H.
Oakland, Calif.

It was Bacon who said at the beginning of the 17th Century: "If a man will begin with certainties, he shall end in doubts; but if he will be content to begin with doubts, he shall end in certainties."

THE HEALTH OFFICER

There can be no question that a career in public health does not today offer sufficient attraction, financial or otherwise, to students of medicine. Certainly, the need for competent officials is greater than the demand. Three things do deter—lack of knowledge inadequate compensation, the uncertainty of tenure. Lack of knowledge as to character of work, and the technical, even personal qualifications, such as honesty, courage, common sense and the public relations complex necessary, may react unfavorably on the service performed.

Political judgment in putting over work is often regarded as a criterion of the successful public health administrator. There is no doubt that the efficient full-time official is not adequately compensated. Medical men in part-time health department work often complain that such contacts are harmful in establishing future practice, and good material hesitates even to enter this field. The advent of civil service regulations in health departments by no means solves this problem. Intelligently but rarely applied, however, especially in cities, it offers great possibilities in continued good service by capable men. This brings up the uncertainty of tenure of office, which acts as a deterrent to entering public health. Many health officials bear in their subconscious minds the repeated history that satisfactory performance of duties is no criterion, and that for political reasons or administration changes they may be discharged. Overall lay control by mayors, chief administrative officers and business managers is usually unintelligent, dictative and even censorious—finally causing a waning and quenching of the original whole-souled interest for harmonious and significant accomplishments for the public weal. Therefore, appointments in health departments should be for set periods of

Health Officer, Oakland, Calif. (J. C. Geiger, M.D.)

years (say six) and should require sufficient qualifications and education, even to master or doctorate degrees, any discharge to be by public trial under specific charges. Well conducted health work very often constitutes an asset that political personages or parties cannot afford to, but invariably, neglect.

The teaching of public health leading to a degree has an argumentative point as to the method of procedure. The advocate of initial post-graduate training in schools of public health, followed by some practical field work either in state, county or city departments, apparently has the best of the argument at present. Those who advocate practical experience preliminary to a collegiate course in public health have been frowned upon, and there is now being used boards for certification, as is done in other specialities of medicine, but not with the same successful conclusions, and, in fact, the results are quite commonplace indeed.

THE HEALTH OFFICER'S EDUCATION

Only a battlescarred veteran in the field of public health would dare these days to talk boldly and directly from experience about the education of a health officer. This is just the reason for these words. Too many persons, lacking both scars and experience, attempt to establish the standards for the education of health officers, and make authoritative remarks about the education of a health officer with no reticence whatever. Our future rests on fruit from seeds now germinating; unless we plant well good seeds on fertile ground, we are now and shall reap a sorry harvest in the future.

The groups who are speaking with more authority than experience include idealists, socialist groups, academicians, small authoritarians, persons seeking political captial, Federal, State, County and City Civil Service Commissions, (particularly the latter) and professional do-gooders whose time is spent always in other persons' yards. Even physicians have been known to regard themselves as authorities in public as well as private health! Most of these persons are in a position to exercise much control in training programs. They are determining the paths of the future, when men whose names spell public health in these United States, like Gorgas, Blue, Carter and others—men who have earned their way and have learned by independent training, experience and

intelligent judgment, are either gone or are avoided, since this counsel might not match the master plans. They can give training of their own to only a few right hand aides who, like themselves, are learning at the public bedside, and who, by getting such training, risk impeachment and replacement by fresh graduates from the teaching propagandists. The training of health officials deserves the most careful inspection, for there are insidious forces at work which are unseen by those who will, unless something is done, have to suffer the consequences. Civic authorities have vital reason to inspect the training now given but what reason have they to suspect it? What basis can they have for evaluation?

The bulk of training, vital to the welfare of many, may be left to a handful of school teachers. They compose not only an idealistic and academic group, but they include persons who have in increasing numbers turned away from the honorable profession of basis teaching, without partisanship, to teaching by direction, indoctrination, and the promotion of causes. Health officials who are busy at their tasks, and their civic and quite often politically elected employers who are busy integrating public health with other units of government, cannot afford to sit on the side lines without even awareness of the platform on which the future is being built. Our personnel and civil service experts are frequently inadvertent victims of the promotional groups of education. The thesis of operation of personnel groups is an independent one. They cannot accept bribery, political push, bias, or pressure. Their creed is fair play. Who can be fair? By the rules, schools are regarded as impartial, impersonal, and objective. Agents of personnel and civil service, empowered to select employees, are including on their own staffs increasing numbers of freshly indoctrinated persons from campus groups, thus inadvertently buying from schools propaganda, sold, like all propaganda, under the guise of objective truths. Instead of serving as balancing factors, as is their function, they become at first unwitting victims, later to become themselves propagandists. Evils are necessarily not universal.

Trends are the main concern—dangerous infiltrations and strong forces overlooked because people have not been accustomed to ask what goes on in the academic world. To accept and worship is the custom of modern practice. Over the years tradition has said

that the campus was a sanctuary on which harmless professors performed while independent youths passed through, with a little basic training but with fortified independence. Too often they were neither indoctrinated nor experienced.

Too many academicians now make deliberate and too often successful efforts to send out carefully indoctrinated persons. Students are kept longer and longer under academic wings; they emerge better indoctrinated and substitute increasingly authoritative attitudes for hard experience. Academic propagandists, like all propagandists, consult in the true political manner primarily those who support their causes. Unconcerned with the truth that is their only proper goal, they ignore groups who belong to proper training when these groups do not further their causes.

Specifically, for example, there are many who are engaged less in teaching than in promoting the cause of governmental medicine. No man anywhere knows a perfect answer to this knotty problem. Schools can hardly afford to ignore the discussion; but their moral obligation, which they are flagrantly violating, is to present the subject as the question that it is. It is a political problem, not one in public health at all. It is a current problem which, when once calmed down, will be a side issue in the problems of public health. Above all, it is an unsolved problem, one which teachers are morally obliged to present dispassionately, without taking sides, and without even permitting their associates and students to take sides, lest victory rather than the whole truth become their goal.

There are mild offenses which perhaps cannot be avoided, such as the presentation of academic theories as if they were cold experience and fact. Public health is often presented not as the health of the public, but as the center of all things. Answers to unanswered problems become, in lectures, simple. These improprieties, arising as often as not from enthusiasm for the work, are inevitable, though that does not make them right.

In the realms of higher pressure there is more serious trouble. Public health is being presented as *the* place for medicine, transcending all others, as a field in which it is proposed that physicians, hospital superintendents, and civic authorities shall be subservient to those who get certificates because they satisfy the whims of these teachers.

The control is perfect. Who dispenses degrees and certificates,

who writes the rules for getting them, and who then serves as sole arbiter of the rules? The increasing stockpile of certificates and degrees demands more and more time from the lives of students, in terms of years. Students who think too independently can be ruled out. Furthermore, the longer the association in school, the greater the hold on those who are out of school. We already have strong machines in operation in which the public health officials more loyally serve their former masters than their true associates. Teachers and their satellites work out combinations with socially or politically ambitious persons in pubic health. The coalitions so affected can be pernicious and insidious.

In budgetary fields, the oversold thesis that "public health is purchasable" has been built into a gargantuan monster. It is no longer considered acceptable to weigh values one against another. There appears to be an operative thesis that we are to take what we need from a limitless supply, somehow always the Government and never the persons who *are* that government. Fair play and balance are not supposed to stand in the way of exalted ambitions.

In research, this has reached utterly fantastic levels. Many research problems, at present costing millions, are fully as fantastic as far-fetched topics used for academic degrees. Backed by facile tongues, anything now passes for legitimate governmental subsidized research.

Governmental agencies are reaching far into the realms of teaching. Class rooms offer the best opportunity to proselytize. Such agencies are literally planting persons in teaching positions, not only at relatively large salaries, but under a type of protection which enables these persons to use tactics which the regular faculty dare not use. To what extent are power and control the goals? Certainly the motives are not all altruistic; as certainly, they are not all good public health. The academician infiltrates the government, and vice versa.

Our younger groups are deliberately taught governmental medicine. It is these, and the middle age medical misfits that mostly inhabit the schools of public health. In a course in political science here, social welfare there, and in other subjects in which governmental medicine properly cannot be even mentioned, an insidious sort of propaganda is being given to whole classes of novitiates. Daily one teacher uses sarcasm, another a sob story, and a third

sheer high pressure not as a part of fair presentation but as a means to further a cause. Eventually we develop and may even need, sometimes, opinionated viewpoints, but our coming health officials are entitled to start from scratch; they are not pawns to be cajoled into positions of favor.

Feelings are high in these matters. The opinions of many persons are virtual convictions. The more common this is, and it is common right now, the more safeguards should be established against the abuse of power by groups in a position to abuse it. Perhaps the best control would be through the solid men now engaged in training in Public Health. There are many cautious men and some experienced men now in the field of training in public health work. At present these men seem unwilling or unable to block those who are out to win converts rather than to make fair presentations. The solid men in the field either need help or their eyes should be opened to present perils.

It seems that, after nearly forty years in public health work, with the grief and the knocks from which, and only from which can come experience, and after these decades of effort to conform to the lives of others, that modern public health training is designed with a political goal. It is unwise to put in a position of health control and authority a man with a set of degrees and maybe eight years of experience on a campus, a man previously indoctrinated with the philosophy of free money, with dictatorial governmental control, and with an assurance that comes from predigested experience expressed through textbooks. This may well stimulate the cry that those with experience through the ages have been tossing at coming generations. Despite a deliberate effort not to make this error, it is probably present, and political appointive officers conform readily to this sorry picture. Yet certainly there is obvious organized effort, hidden propaganda, and political methods which once would not have been accepted on grounds of ethics alone. The intellectual justice for which our campuses should stand is being prostituted, and there are needed active methods of investigation and counterbalance.

The San Francisco Medical Society on March 12, 1952 granted to J. C. Geiger, M.D. an Honorary Fellowship, the first in medical history to a Health Officer. The citation accompanying the plaque is as follows: "For scientific acumen in the successful handling for 21 years of Public Health problems of a large city, San Francisco".

CLINICAL REVIEW

In order to encourage the writing of clinical articles by recent graduates or senior medical students, the ARCHIVES *will publish monthly at least one such paper from the classes of Doctor Reuel A. Benson, New York Medical College, New York, and Doctor Philip Moen Stimson, Cornell Medical School, New York. Other interested medical schools are cordially invited to submit student papers for consideration.*

MEGALOBLASTIC ANEMIA IN INFANCY*

JOHN W. CARRIER, M.D.
Lewiston, Maine.

Megaloblastic anemia of infancy is a relatively new syndrome, first described by Zuelzer and Ogden[1] in 1946. They state that it is ". . . a specific dysplasia and dysfunction of the bone marrow organ, developing in the absence of an essential hemopoietic principle and leading to a severe anemia." At this time, these authors were not able to determine a definite etiologic factor or a constant clinical picture. Since this paper was published, several more reports have presented additional cases and new theories as to etiology, mechanism, therapy, etc. The purpose of this paper is to compare the findings of several authors and to attempt to establish some sort of standard picture.

Since the pathology is the only truly constant finding in this syndrome, this will be the first topic of consideration. In the bone marrow, erythrocytes normally develop in a standardized pattern. The proerythroblast is the earliest cell seen, and constitutes only about one per cent of the normal marrow. The nucleus has a fine chromatin network which is evenly distributed. Two or three nucleoli are seen within the nucleus. The cell itself is large and has basophilic cytoplasm. This cell undergoes mitotic division and forms the erythroblast whose nucleus occupies more than one-half of the cell, and is made up of the chromatin network, but has no nucleolus. The pronormoblast is the next cell in the series and this cell has a smaller, more compact nucleus, which still shows the chromatin network which is coarse by this time. In the normoblast stage, the nucleus has shrunk ever more and the chromatin is no longer in the form of a distinguishable network.

*Submitted as partial fulfillment of the requirements of the course in Senior Pediatrics at the New York Medical College, Flower and Fifth Avenue Hospitals, New York.

The erythrocyte results when the nucleus of the normoblast undergoes fragmentation and solution.

In megaloblastic anemia, the predominant cell type seen in the bone marrow is a cell intermediate between a megaloblast and a normoblast. These cells are large and contain an increased amount of cytoplasm. The nucleus is more acidophilic and contains a chromatin network which is coarser than that of the negaloblast. Parachromatin is increased in amount. Zuelzer[2] feels that this cell type is an early form of the megaloblast since: (1) it resembles this cell in all but the fine details; (2) this cell is never seen in the absence of megaloblasts; (3) it disappears early in the therapy of the condition. Many mature megaloblasts are also seen. In addition to this, the marrow shows increased mitoses, many of which are abnormal, nuclear lobulation, karyorrhexis and karyolysis and many young basophilic and polychromatic cells. The leukocytic elements of the marrow are also affected, the following abnormalities being demonstrable: (1) nuclear hypersegmentation in young cells; (2) abnormal granulations; (3) vacuolization of the cytoplasm. Megakaryocytes seemed to be rare, but no definite conclusions could be drawn concerning them.

The most striking thing seen in the peripheral blood studies is the anemia, which may be very profound, and is normochromic and macro- or normocytic in type. Though there are many macrocytes, the mean cell diameter may be normal due to the large number of microcytes. Howell-Jolly bodies and Cabot rings are not uncommonly seen. Nucleated red cells are always seen, although they may be rare. The neutrophils are larger than normal, often showing hypersegmentation of the nuclei. There is often a leukopenia with a neutropenia and a relative lymphocytosis; however, this may be overshadowed by a leukocytosis due to secondary infection. Platelets are often, though not necessarily, reduced in number.

This syndrome has been reported in infants from two weeks to eighteen months of age only. Every case, except one, has occurred in white infants, the distribution between the sexes being approximately equal. The past history in the majority has been considered to be normal. In a great many cases, however, the infants' diets consisted of powdered protein milk preparations, with variable and usually poor vitamin C intake. These milk preparations

formerly did not have vitamin C added, though most of them do now. Milk contains little folic acid, and the heating used in preparing powdered and evaporated milk further destroys what little folic acid there is. Also, the intake of solid foods, which is the main source of folic acid, was delayed until late, or the foods were refused or taken poorly by the infants in many cases.

The clinical picture seen in megaloblastic anemia is by no means constant. Pallor, anorexia, weakness and irritability, fever, vomiting and diarrhea are common, and infection of some sort is present in nearly every case, usually an upper respiratory infection. A functional soft precordial systolic murmur is frequently heard, and hepatomegaly is present in a great number of cases. Splenomegaly is not uncommonly seen, and petechia have been noted in several cases. A histamine refractory achlorhydria has been reported in at least half the cases. This often responds to therapy. There is always some growth disturbance, which is said to be due to the derangement in the serum proteins.

Laboratory studies show a normochromic, macrocytic anemia of variable degree. The hemoglobin and red blood cell levels are always low, color index slightly increased, and the hematocrit low. The mean corpuscular volume is increased, the mean corpuscular hemoglobin normal and the mean corpuscular hemoglobin concentration decreased. In the absence of a superimposed infection there is usually a leukopenia with a neutropenia and lymphocytosis. The reticulocyte count is always low. Thrombocytopenia is often noted and may be marked enough to cause an increase in the bleeding time. In several cases x-ray and clinical evidence of vitamin C deficiency has been observed in varying degrees. This is more common than is to be expected, and some feel that this is definitely connected with the etiology of the syndrome.

Before discussing specific therapy it is necessary to mention that infectious processes, if present, must be cleared up since there may be some connection between the two. In some cases the infection may not respond to therapy until the anemia is corrected at least partially. The majority, if not all the deaths occurring in this condition have been due to the overwhelming sepsis present.

At the present time, specific therapy of megaloblastic anemia of infancy is under dispute. Liver extract[1, 2, 3] and folic acid[1, 2, 3, 6, 10] have both been given successfully and vitamin B_{12}[3, 8, 9, 4] has been

successful in many of the cases in which it has been tried. Therapy results in a permanent cure in all cases, but the problem involved at present is which is the drug of choice. Luhby[3] states that folic acid is the drug of choice at present since vitamin B_{12} does not give good results in all cases. All authors feel that the disease results from a deficiency of the erythrocyte maturing factor, but none know just what this factor is or does. Luhby[3] believes that this factor is made up of two things, namely, folic acid and vitamin B_{12}. The body usually has enough vitamin B_{12} stores, but the folic acid reserve may be low, in which case B_{12} therapy will not result in a cure. Therapeutic response is evaluated by a reticulocyte response in the peripheral blood, a return of the bone marrow to a normal pattern, correction of the leukocytic derangement, and increased hemoglobin and red blood cell levels with disappearance of young forms of cells from the peripheral blood. The reticulocyte response is quite constant, appearing in about three or four days and reaching a maximum in three or four more days. A maximal response of 69 per cent has been recorded. After this peak, the reticulocyte count gradually falls off until it reaches normal levels. The bone marrow changes are very dramatic, vast changes being seen as early as twelve hours after institution of therapy, and a completely normal marrow being seen on a 48 to 96 hour smear. This response is permanent without further courses of therapy, as has been shown by follow-up studies. This is one of the main differential points between this anemia and pernicious anemia, which occurs rarely in infancy and childhood. In the latter, continued therapy is necessary, and central nervous system changes are often seen; the latter have not been recorded for megaloblastic anemia of infancy.

Dosage of the drugs has not been stressed by the various authors. Zuelzer and Ogden,[1] in their original work, used liver extract in 15 U.S.P. unit doses, and folic acid in 20 to 200 mgm. doses for five to fifteen day periods. Their results were about the same with both drugs. Oral folic acid preparations are effective and may be given in 10 to 15 mgm. daily doses. Vitamin B_{12} is a newer preparation and early results indicate that this drug is more effective than either folic acid or liver extract. At present, however, reports are accumulating that show that this drug is not always effective, or if effective, not maximally so. McPherson[4] et al

report one case in which two micrograms effected a cure, and another in which there was a submaximal response to 2.5 micrograms, followed by another response after a transfusion and 8 micrograms more of vitamin B_{12}. In nearly all cases vitamin C was administered prior to, with or shortly after specific therapy.

The prognosis in this condition is very good, since one course of therapy will result in a permanent cure.

Diagnosis rests on clinical and laboratory findings and bone marrow examination. Final diagnosis is certain after a permanent cure results from treatment. Medalie[5] feels that diagnosis may often be difficult due to the lack of a constant clinical picture and he states that all forms of anemia must be ruled out.

The etiology of megaloblastic anemia now remains to be discussed. Zuelzer,[1] in his original work, did not feel that nutrition was too important a factor in the etiology of this condition; however, he listed it along with infection and a constitutional predisposition as possible factors. It now appears that nutrition is a rather important factor. Most of the children received powdered milk formulae which were adequate according to regular standards. As mentioned above, these products are poor in folic acid content. In addition, many cases had a history of poor vitamin C intake as well. It is known that folic acid is capable of replacing vitamin C in tyrosine metabolism, and in cases of vitamin C deficiency the folic acid stores in the body may be exhausted. If in addition the infant does not receive vegetables and solid foods, he has no way of replacing the folic acid supply which in turn goes on to cause the hemopoietic defect. Therefore, on administration of vitamin B_{12} and vitamin C a submaximal response may be obtained due to the release of the small amount of folic acid available by the vitamin C. If folic acid is administered instead, the response is complete, since the body usually has a sufficient supply of vitamin B_{12}. If the patient has a severe vitamin C deficiency, it may be assumed that more folic acid would be required to obtain a response, since some would probably be used to replace vitamin C. Thompson,[6] et al. have reported two cases of megaloblastic anemia occurring in celiac disease which responded well to folic acid therapy. The anemia was cured, but the celiac disease was not affected. In eleven other cases of celiac disease studied, no anemia of this type was found.

Infection is also important as an etiologic factor, since this causes an increased demand on the body's supply of folic acid. Also, the accompanying diarrhea, anorexia and vomiting decreases the intake and absorption of folic acid. Sterilization of the gastrointestinal tract by medications may decrease the synthesis and absorption of folic acid.

Constitutional factors, such as age and race, make up the third factor. The disease occurs only in infants from two weeks to eighteen months. The cases are distributed about equally between the sexes. Race apparently is an important factor, since in all the cases studied, only one case occurred in a negro infant. This is quite significant in view of the fact that many of the studies came from hospitals whose daily census showed a high proportion of colored patients.

Luhby[7] has done studies on infants with megaloblastic anemia which show that the intrinsic factor of gastric juice is not lacking, although it may be present in somewhat decreased amounts.

In summary, we may state that megaloblastic anemia of infancy is a definite pathologic entity involving the erythrocytic, leukocytic and thrombocytic series and producing definite reversible changes in the bone marrow. Its etiology is still undetermined but it is believed related to nutrition, infection and constitutional factors. The pathogenesis of this condition is little understood at this time, but similar pathologic changes are produced in all cases. The prognosis is excellent, one course of liver extract, folic acid, and usually vitamin B_{12} therapy resulting in a permanent cure. At present, folic acid in oral or parenteral form is probably the drug of choice.

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Central Maine General Hospital

STREPTOMYCIN IN TYPHOID FEVER AND TUBERCULOUS MENINGITIS. (Clinica Pediatrica, Bologna, 33: 484, Aug. 1951). Streptomycin intravenously in daily doses of 400 mg. and streptomycin intrathecally in doses of 35 mg. every three days were given to three children, 30, 21, and 11 months old, respectively, with tuberculous meningitis. The general condition of the patients improved, and the spinal fluid tended to normalization. In the first six months and in the second nine months after admission the tempertaure was elevated, and red spots appeared on the abdomen and thorax. Ten days later both had a positive Widal reaction. Chloramphenicol (chloromycetin) was given orally in daily doses of 0.75 gm. for three days and subsequently in daily doses of 0.50 gm. and 0.25 gm. The first child recovered. Swelling of the right knee, indicating a localization of the Eberthella bacillus, occurred in the second patient to whom additional chloramphenicol and intravenous typhoid vaccine were administered. Ten days later temperature was normal and the patient well. These two patients recovered from typhoid without the tuberculous meningitis becoming worse. The third child had been cured of tuberculous meningitis and dismissed with sequelae of encephalitis. In this case the occurrence of typhoid fever caused severe anemia, spinal block, and aggravation of the encephalitic symptoms that resulted in death of the patient. The assumption that the meningoencephalitis secondary to the typhoid disease was a relapse of the previous tuberculous meningitis was ruled out, and meningoencephalitis due to allergy or parallergy to chloramphenicol was suggested. In patients with prior history of encephalitic disturbance typhoid fever may reactivate the previous lesions and cause a toxic meningoencephalitis. But, as seen in the first two cases, typhoid fever does not always cause relapse of tuberculous miningitis.—*Journal A.M.A.*

PEDIATRICS AT THE TURN OF THE CENTURY

From time to time the Archives, which was the first Children's Journal in the English language, will reprint contributions by the pioneers of the specialty forty to fifty years ago. It is believed that our readers will be interested in reviewing such early pediatric thought.

DIAGNOSIS OF APPENDICITIS IN CHILDREN*

J. H. Hess, M.D.
Chicago.

Appendicitis in infancy and childhood is one which apparently, in the literature at least, has not received its just attention. In reviewing the literature I find a very limited number of writers taking up this important subject in detail, most contenting themselves with the reports of a few cases.

The importance of this field to the pediatrist becomes apparent, if we can rely upon the percentage statistics of its occurrence in some of the larger clinics.

Einhorn reports that children between 1 and 15 years of age represent only 2 per cent of all his hospital patients, from which Selter deducts that appendicitis is 7 times as frequent among children as in adults.

Erdmann reports a total of 250 cases of appendicitis with 201 operations; of these 29 were children under the tenth year, with 22 operations resulting in 20 recoveries and 2 deaths. All were acute cases, 9 were operated on the primary attack and 11 in the secondary or multiple attacks; in 2 not stated. There were 14 cases of gangrene and perforation; 7 cases of foreign bodies, 4 cases of the latter containing from 6 to 30 pin-worms each. As to age, 1 occurred at 3 years, 2 at 5, 3 at 6, 7 at 7, 4 at 9, and 5 at 10 years.

Matterstock reports 46 cases under 10 years of a total of 474 cases; Fitz 22 out of 228 cases; Sonnenburg 14 out of 130 and Nothnagel 1 out of 130; but the latter believed this to be due to the fact that children are rarely received in his clinic. Griffith has collected 15 cases under 2 years of age, 2 of which, Pollard's

*Read before the Southwestern Section of the Chicago Medical Society, April 4, 1905. Reprinted from Archives of Pediatrics, 22: 329-336, May 1905.

and Gayen's, were six weeks of age. McCosh in his first 1,000 operative cases of appendicitis found 1.7 per cent operated in the first 5 years, while 7.5 per cent had shown symptoms during the first ten years. Clodo has described a fold of peritoneum extending from the appendix to the ovary, the appendiculo-ovarian ligament, which carries a bloodvessel to the appendix. This, together with the fact that the appendix of the female is smaller than that of the male, may account for the comparatively small percentage of attacks among girls; according to most authors it is not more than one-half as frequent as in male children and infants.

The high percentage of appendicitis in childhood is thought by Sahli to be due to the great amount of lymphoid tissue in the appendix at this early age, and its tendency to rapid increase and secondary degeneration under prevailing influences so common does he believe this to be that he definitely names it "Angina of the Vermiform Appendix." Klemm carries the analogy still further by suggesting this to be but a type of the inflammation to which all organs rich in lymphoid tissue are subject, examples of which are represented by lymphadenitis, tonsillitis, osteomyelitis, etc. As in case of the tonsils, an organ so infiltrated is readily affected by intercurrent traumatisms, circulatory disturbances and injuries by foreign bodies within the lumen leading to early infection, infiltration, ulceration and gangrene. This etiological relationship appears verified by the numerous cases reported (Apolent, Kretz, Sonnenburg, Kelynack and Schnitzler), in which unusually severe attacks of appendicitis, resulting in abscess formation, have followed suppurative tonsillitis and in which the same streptococci were found in the appendix as in the tonsil.

As regards the bacteriology of appendicitis and perityphilitis, the greater number of investigations have shown that, as a rule, we are dealing with a mixed infection in which the most important organisms are the bacillus coli communis, the streptococcus pyogenes, the diplococcus pneumoniæ and the anerobes; while these forms are frequently found, especially in the more virulent types, other forms of bacteria may assume the major role.

I wish to note briefly a case of fulminating appendicitis in a sixteen-year-old boy, seen sixty hours after the first symptoms and operated upon two hours later, in which the distal half of the appendix was gangrenous, and at least 12 ounces of fluid evacu-

ated from the general peritoneal cavity, in which the predominating organism was streptococcus. The pus was mopped out with sponges, the cavity drained with cigarette drains and after an uneventful recovery, he left the hospital in three and one-half weeks.

It is now generally recognized that the pathogenic powers of bacteria are not determined exclusively by their individual virulence, but also, and possibly primarily, by the resisting powers of the organism and of the particular tissue invaded by the bacteria. It appears that in the vermiform appendix the various factors which intensify the pathogenic power of the invading bacteria are present; some of these factors have a tendency to increase the virulence of the bacteria, others to lower the resisting powers of the tissues, while in some instances both of these factors may be at work at the same time. While difficult to prove, it seems highly probable that the appendix, with its numerous follicles, is a convenient point of entry for microorganisms, and thus resembles the tonsils which are also rich in lymphatic tissue.

DIAGNOSIS

We now come in contact with one of the most complex problems of modern surgery. First, we have before us an individual entity who, in all probability, has little or no power of interpreting the special symptoms of the complex group from which he may be a sufferer; second, because of his age he cannot be made to understand that it is of prime importance to aid the diagnostician rather than hinder him by crying, restlessness, and a general rigidity which almost invariably predominates in the young.

Again the severe, diffuse variety is commoner than the simple catarrhal, or the latter may rapidly pass into the former, and our first realization of the serious trouble at hand be the presence of a general or localized peritonitis.

Let us now recall the classical and less constant findings in our adult cases and briefly treat of them in the order of their seeming importance as applied to appendicitis in infancy and childhood, bearing in mind the differences to be expected in the catarrhal, gangrenous or the perforative stages, respectively.

(1) *Spontaneous Pain* manifested in the very young by fitful crying and sleep. In typical cases it is at first localized at

"McBurney's point," but it soon becomes diffuse, radiating from the umbilicus into the pelvis. Young children complain of "belly ache," and usually lie curled up on one side. More rarely the pain may be referred to the right testicle or to the neck of the bladder, because of the close relation with the right ureter, a point which should be carefully borne in mind while operating. In rare instances we may have perforation before we get a history of pain (Spieler).

(2) *Hyperesthesia.* Tenderness on pressure is apt to be difficult to localize in the young and therefore of little value.

(3) *Muscle Spasm* or rigidity of the right rectus is present unusually early in children, but it is difficult to elicit and localize because of the child's fear of examination, and its tendency toward rigidity of the abdominal muscles in general. Its elicitation is one of our most valuable diagnostic aids and is a fitting reward after a gentle and patient examination.

These three symptoms, when associated with vomiting and constipation, make a positive diagnosis possible in at least a majority of cases of older children, but in infancy and early childhood the diagnosis becomes far more difficult, because of the tendencies of the child to evade examination and it becomes necessary to look for further aid.

(4) *Nausea and Vomiting* are usually present a short time after the onset of pain; they usually cease as soon as the stomach is empty but reappear in the later stages of the disease, when perforation has occurred, an abscess formed, or an intestinal paresis exists.

(5) *Chill.* Rarely seen in the first stage.

(6) *Pulse.* In simple cases the pulse usually corresponds with considerable regularity to the temperature, even more so in children than in adults; also as long as the process remains localized when extensive peritonitis exists the pulse becomes rapid and weak, easily compressible and irregular in character.

(7) *Temperature* is unreliable, as the worst types may run their course without any great rise of temperature and we may easily have a distinct fall of temperature after perforation and beginning peritonitis. Rectal temperatures only are reliable.

(8) *Constipation* is the rule in these cases. Diarrhea may be present, and the latter cases as a group are less urgent than

those associated with constipation, whose early occurrence usually indicates intestinal paresis. The absence of blood, bloody mucus, etc., are important because of their predominance in intussusception.

(9) *Tympanites* with gradually increasing persistent abdominal distention is usually a later development.

(10) *Flexion of the Thigh,* which is usually well brought out by attempts at extension and flexion of the two thighs.

(11) *Unconscious Tendency to Place the Hands in the Region of the Appendix* to prevent examination of the sensitive area, which, unfortunately, is not always located in the classical region, is of frequent enough occurrence to be of diagnostic value.

(12) *Rectal Palpitation.* In older children whose attention can be claimed, this method of examination is of prime importance. In catarrhal cases I have several times been able to locate the point of greatest pain with accuracy and not infrequently the outline of the inflamed appendix can be palpated through the thin rectal wall in these small pelves. In later stages its value for locating localized abscesses or intraperitoneal pressure is of inestimable value.

(13) *Tumor by Abdominal Palpation,* if the illness is of several days' duration, associated with a septic temperature, rigor, leukocytosis, etc., should always lead to the consideration of appendicitis.

(14) *Increased Frequency of Micturition* due probably to the close proximity of the right ureter and bladder to the area of inflammation.

(15) *Leukocyte Count.* As a rule in children it is not as valuable as in adults, because of the great range under normal conditions, going to 20,000 or even higher. Probably the most reliable finding is a decided leukopenia of 5,000 to 8,000 in the presence of peritoneal involvement, which indicates either a low resistance or a preponderance of the infection over the natural resistance and is always an evil omen. Probably more important than a simple increase will be a differential count when better understood. Gundobin estimates that in infancy polymorphonuclear cells average 34.0 per cent., mononuclear lymphocytes 59 per cent. and transitional forms 6.4 per cent., while in later childhood the polymorphonuclears increase more nearly to the normal.

Remembering these characteristics a leukocyte count of 30,000 or more, with 80 per cent. polymorphonuclear cells, or 15,000 with 90 per cent. polymorphonuclear cells, should always lead to the suspicion of the presence of pus. In intestinal obstruction the leukocytes number even 50-80,000 which must not be forgotten. In all cases the accompanying findings must be considered.

(16) *Iodophilia Test* which in the presence of pus has some claim to recognition. My own experience with it has not been entirely satisfactory. Although the laboratory findings are of considerable value in the diagnosis of atypical cases, and aid in the prognosis of the most virulent types, they should not, except in rare instances, be allowed to set the time of operation. Therefore, to be of value, we should (1) Count the number of leukocytes. (2) Make a differential count; remembering the difference between the normal infants and adult count. (3) Stain the blood film by special methods. Iodin reaction, etc.

(17) *History of Previous Indefinite Attacks of Abdominal Pain* associated with a tendency to persist, and a slow retrogression of the group of indefinite symptoms, is of vast importance and the history should always secure careful consideration.

DIFFERENTIAL DIAGNOSIS

The surgeon is only too rarely called upon to treat a simple case of inflammation of the vermiform appendix in early childhood; and as the acute initial symptoms may be followed very quickly by the signs of a diffuse infective peritonitis, it becomes necessary for the diagnostician to be well acquainted with the disease in all its forms. The signs of perforation may become manifest after the first defecation, whether it be spontaneous or produced by an enema. It has been my unfortunate experience on several occasions to be called after many hours or days of delay spent in fruitless attempts to relieve "belly-ache," and on two occasions the time of perforation could be definitely ascertained by a history of sudden cessation of pain after a short, sharp paroxysm.

The conditions with which we are most likely to come in contact and which will necessitate consideration after differentiation are probably as follows:

(1) *Colic.* This is distinguished by the absence of localized tenderness and fever, by its short duration, and by the fact that

the pain is generally less intense. Severe colic in older children should, however, always be regarded with suspicion.

(2) *Indigestion.* From acute indigestion the diagnosis is often difficult at the onset and may be impossible for twenty-four hours. The pain is usually less severe, but the temperature is higher. The pain is not usually localized, and if so, it is more apt to be in the epigastrium or umbilicus. But the same may be true of appendicitis and in the presence of pain, vomiting, localized tenderness, and severe constitutional symptoms, appendicitis is never to be lost sight of. With the formar, diarrhea is the more frequent, while in appendicitis the reverse is true.

(3) *Intussusception* in infants without a palpable tumor requires a great deal of care in differentiation, otherwise an error may be made. With a proper examination and history in a typical case the diagnosis is not difficult. Pain, colic, and vomiting are intensive and severe from the time of onset. Bloody stools and tenesmus are almost constant. Temperature shows little or no elevation at the onset; and in the presence of a typical tumor palpable through a more or less lax abdominal wall only moderately hyperesthetic, our diagnosis should be complete. This was well illustrated by a case which I operated upon this afternoon, in which there existed a highly edematous tumor of twenty-nine hours' standing, involving over thirty inches of intestine and in which case the child seemed to suffer a minimum of pain upon deep abdominal palpation, allowing the same to be made without crying or resistance.

(4) *Acute Intestinal Obstruction.* Its onset is more abrupt, pain of severer type, remissive in character, and referred frequently, though not always, to the seat of obstruction. There are absolute constipation and suppression of flatus, with early and persistent vomiting, soon becoming fecal, a condition rarely occurring except in the later stages of appendicitis. Shock and collapse appear earlier in obstruction than in appendicitis.

(5) *Psoitis.* Usually of traumatic origin and associated with a deformity due to retraction of the thigh, but is rarely accompanied by the typical findings of appendicitis and more frequently taken for a Pott's disease.

(6) *Pott's Disease.* The absence of intestinal symptoms, curving of the lumbar spine, when the limb is brought into a fully

extended position, the characteristic deformity, inability to execute the normal movements of the joint, and pain referred to the knee, are sufficient to characterize the disease of the hip-joint.

(7) *Renal Colic.* Usually ushered in by a chill, and the excruciating pain is more perceptible posteriorly than anteriorly; and radiates along the course of the ureter into the ovary or testicle, and is diminished by the voiding of urine. There is usually absence of temperature, abdominal rigidity and localized pain in the right iliac fossa. Blood is frequently found in the urine.

(8) *Biliary Colic.* Fever is absent in uncomplicated cases, history frequently of previous attacks accompanied by jaundice, clay-colored stools, and higher location of seat of pain with frequently a radiation upward and posteriorly to the scapula are all points of differentiation.

(9) *Perityphilitic or Perinephritic Abscess.* They may be secondary to appendicitis, the abscess taking this course rather than a peritonitis and the pus may then track up the back for a considerable distance where it may be opened in the loin. In primary cases of the latter there is rarely disturbance of intestinal function.

(10) *Pneumonia and Pleurisy.* Both present a tendency on the part of the child to refer to the abdomen the pain really felt in the chest. Associated with this pain are constipation and abdominal tenderness, with distention; symptoms which commonly usher in an attack of pneumonia and early produce a clinical picture simulating appendicitis. Differentiation is usually possible by carefully noting the history of (1) a sudden rise of temperature to 103° F., or thereabouts, and the tendency to maintain this degree with usually a preceding history of chill or convulsions; (2) the acceleration of respiration which is out of proportion to the pulse rate or the pyrexia; (3) the relaxation of the abdominal walls between respirations; (4) the disappearance or diminution of tenderness on deep pressure with the flat of the hand; (5) the possible presence of cough. No operation for appendicitis should be undertaken until after careful and repeated examination of the lungs has been made.

(11) *Tuberculous Peritonitis* must be considered in differentiating the more chronic forms. The clinical history, physical findings other than abdominal lesions and early ascites and progressive

course, make differentation after prolonged observation in most cases possible.

(12) *Incipient Inguinal Hernia.* It is usually not accompanied by a rise in temperature or abdominal rigidity. Examination of the hernial orifices should be made in all suspected cases of appendicitis.

(13) *Typhoid Fever.* A Widal reaction is of great assistance as are also the absence of the usual physical findings and low leukocyte count. The most difficult complication to differentiate is a perforating ulcer in an ambulatory typhoid case.

(14) *Infection of Meckel's Diverticulum.* Very rare except early when still attached to the umbilicus, when the infection and distention show themselves in the scar of the cord. The same may be said of a patent urachus.

(15) *Torsion of the Cord of an Undescended Testicle.* A case of torsion of the cord of an undescended, right-sided testicle, which I recently saw in consultation, presented many of the findings of intestinal obstruction, but upon careful examination the true condition became apparent and was confirmed and operated.

WHEAT GERM OIL IN NEUROMUSCULAR DISORDERS. (Journal Neurol. & Psychiatry, London, 14: 95, May 1951). A total of 151 patients with neuromuscular disorders were investigated and followed for up to 12 years. Of these patients, 107 were treated with either wheat germ oil or wheat germ oil concentrate, sometimes with the addition of tocopherols. Thirteen showed definite improvement. These include two cases of atypical muscular atrophy. In five (three children and two adults) out of 25 patients with progressive muscular dystrophy, symptoms were arrested, and moderate to marked improvement occurred. Three out of five patients with menopausal muscular dystrophy showed remarkable improvement. All three cases of dermatomyositis responded favorably to wheat germ oil therapy. The authors conclude that certain neuromuscular disorders respond to wheat germ oil therapy and that these conditions are the ones that are also apt to be improved by adrenal corticoids.—*Journal A.M.A.*

DEPARTMENT OF ABSTRACTS

Bodian, M.; White, L. L. R.; Carter, C. O. and Louw, J. H.: Congenital Duodenal Obstruction and Mongolism. (British Medical Journal, 4749: 77, Jan. 12, 1952).

Of 32 cases with congenital atresia or severe stenosis of the duodenum observed in the last 25 years no fewer than 10 were recognized as mongols. The frequency of this association has not been generally appreciated probably because most children with these obstructions die during the neonatal period when mongolism is apt to be overlooked. In a newborn mongol the head is usually rounded, and on palpation of the sagittal suture a third fontanelle may be found. The facial contour is square; the oblique palpebral fissures are small and measure less than the interocular distance; medial epicanthic folds are usually present; the nasal bridge is depressed; the ears are poorly formed and have a crumpled appearance; the tongue tends to protrude; fingers are somewhat short and the little finger may be incurved owing to a short middle phalanx; a single transverse palmar crease is often present.

Michael A. Brescia, M.D.

Loughlin, E. H.; Rappaport, I.; Mullin, W. G.; Wells, H. S.; Joseph, A. A. and Shookhoff, H. B.: The Treatment of Enterobiasis with Terramycin Base. (Antibiotics and Chemotherapy, 1:588, Dec. 1951).

Thirty patients were successfully treated with terramycin base for enterobiasis (pinworms). No relapses were noted 5 weeks after completion of therapy. Terramycin is given for seven days in a single daily dose as follows: patients less than 5 years of age, 1 gm. daily; patients between 3 and 10 years of age, 1½ gm. daily; and those over 10 years of age, including adults, 2 gm. daily. No toxicity was noted. All members of the family should be treated simultaneously so as to avoid the possibility of reinfection and to break the chain of infection in the family. The effects of terramycin in enterobiasis are manifested by alteration of the morphology of the eggs, regressing maturation with each successive day of therapy until the disappearance of the eggs from Scotch tape impressions.

Michael A. Brescia, M.D.

La Boccetta, A. C. and Dawson, K. E.: Priscoline in Acute Poliomyelitis. Clinical Observation of Seventy-One Patients. (Journal American Medical Association, 148:1083, March 29, 1952).

Seventy-one patients, 56 of whom were under 14 years of age, with acute anterior poliomyelitis were treated with priscoline. The patients, who were selected because of their marked symptoms of pain and muscle spasm, included 4 with nonparalytic, one with bulbar-spinal-encephalitic, one with spinal-encephalitic disease, and 65 with spinal involvement. Spontaneous muscle pain was present in 45 patients but could be elicited by manipulation or stretching of muscles in 67 of the 71 patients. Complete relief of pain was obtained in 19 (26.8 per cent), complete relief of pain without striking relief of muscle spasm was obtained in 26 (36.6 per cent) and no effect was noted in 26 (36.6 per cent). Untoward reactions included nausea (17), nausea and vomiting (11), marked flushing of the skin (21), diaphoresis (7), chills (6), diarrhea (1), palpitation (1) and urticaria (1). The authors feel that a trial with priscoline for the relief of muscle pain and spasm in the treatment of patients with acute poliomyelitis is justified.

Michael A. Brescia, M.D.

Roudinesco, J.; David, M. and Nicolas, J.: Responses of Young Children To Separation from Their Mothers. (Courrier, 2:66, Feb. 1952.)

The authors observed the behavior of infants ranging in age from 12 to 17 months who were separated temporarily from their mothers. Some of the infants respond to the separation with intense distress. These children cry, moan or scream. They do not touch their toys but completely surrender themselves to their distress and are interested in nothing. They may calm themselves when someone is with them but start crying again when left alone. Others in this group ignore the adults or turn away when they come to console them. They become apathetic and disinterested. Some of the infants make an easy adjustment to the separation. They are gay, laugh, play and smile. However, the authors emphasize that no children can maintain this type of adjustment for long. They all reach a point where they suddenly break down and show overt distress or progressively develop the many signs of maladjustment that are described for the children who make a partial or

precarious adjustment to the separation. Most of the children fall in this latter category. Their maladjustment might include a lack of interest in the adult, rejection of the adult or unusual demands for the adult. These children might develop various eating problems, disorders of motor behavior and dislike of other children.

MICHAEL A. BRESCIA, M.D.

JOHNSON, A. L.; MCCALL, M. F.; HARPUR, E. R.; BURNS, A., AND WOLMAN, B.: CORTISONE AND ACTH IN THE TREATMENT OF RHEUMATIC FEVER. (Canadian Medical Association Journal, 66:225, March 1952).

Thirty-nine children with rheumatic fever, including 5 with chorea, between the ages of 3½ and 15 years, were treated with cortisone or ACTH. Clinical manifestations reappeared in 4 to 6 days after cessation of therapy in 5 of 39 cases. In 4 others, a recurrent episode occurred 1, 2½, 4 and 6 months after therapy. Five children showed no apparent response to therapy. All 5 patients with chorea improved, but in only one case did it appear without doubt that therapy had influenced the course of the illness. Of seven patients with acute carditis, all showed an excellent response within 48 hours. Two of these left the hospital without any clinical evidence of heart disease and in 4 others a decrease in the size of the heart was noted. Of 17 patients with cardiac murmurs, a change was noted in seven. Apical systolic murmurs disappeared in 3 patients and diminished in two. An aortic diastolic murmur diminished in intensity in one and an apical mid-diastolic rumble disappeared in another.

MICHAEL A. BRESCIA, M.D.

KAO, Y-E.: TETANUS NEONATORUM. REPORT OF SIX CASES WITH RECOVERY. (Chinese Medical Journal, 69:512, Nov.-Dec. 1951).

The author reports the complete recovery of six cases of tetanus in infants ranging in age from 10 days to 21 days. The site of entry of the organism was the umbilicus. The treatment consisted of 10,000 units of tetanus antitoxin intramuscularly, daily for 3 days, except for one case who received 75,000 units. Penicillin was also given to prevent multiplication of C. tetani and was given 10,000 U. every three hours intramuscularly for an average of 14 days. Sedatives and fluids were given as indicated. No specific

treatment was directed toward the umbilicus except to keep it clean. MICHAEL A. BRESCIA, M.D.

BREAST FEEDING DURING MASTITIS. (Deutsche Medizinische Wochenschrift, Stuttgart, *76*: 1338, Oct. *26*, 1951). As a result of the high incidence of mastitis in Germany during the postwar years, Kirchhoff was able to study the fate of infants whose mothers had mastitis. Breast feeding was frequently continued after the onset of mastitis. Among the infants of women with mild forms of mastitis, 10 (or 6.6 per cent) became ill with dyspepsia, pyodermia, or furunculosis, but there was no fatality. Of the infants of 34 women with moderately severe mastitis who continued to nurse their children, 19 became ill and 3 died. Adequate records were available for only 25 of 59 women who had severe mastitis. Of 16 infants who were breast fed during the onset of mastitis, 11 became ill and 5 of these died. On the basis of these figures the author demands that as soon as signs of mastitis appear, nursing at the diseased breast should be discontinued.—*Journal A.M.A.*

EPIDEMIC OF BORNHOLM DISEASE. (Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam, 95: 2938, Oct. 6, 1951). Schaeffer presents the histories of a number of patients, mostly children from 4 to 20 years of age, who suddenly became ill with high fever and severe pain in the abdominal and chest muscles, symptoms like those of the condition generally referred to as Bornholm disease (pleurodynia). The first cases were observed during May 1951, but the disease rapidly assumed epidemic proportions and a total of 358 cases were observed in the northern part of Amsterdam and surroundings. Lay persons generally referred to the disease as "summer grip." The abdominal symptoms were so severe in some cases that appendicitis was suspected. In other cases, the pleurodynia was most pronounced. Temperature curves demonstrate that the fever is often intermittent, two or three attacks of high fever being separated by one or more days without fever or very slight elevation of temperature. A virus of the Coxsackie group, type "Powers," was isolated at the University of Amsterdam. The most frequent complications were pleurisy and a special form of tonsilitis with symptoms of herpes (herpangina).—*Journal A.M.A.*

PENICILLIN IN ACUTE MASTOIDITIS. (British Medical Journal, London, 2: 1191, Nov. 17, 1951). Of 118 children with acute mastoiditis treated with penicillin, 59 who did not have fluctuation recovered without surgical intervention. The remaining 59 patients had fluctuation, and in 38 of them the postauricular abscess had to be incised. In the other 21 the abscess was absorbed spontaneously. Only three patients required mastoidectomy, and one of them had tuberculous tympanomastoiditis. The dose of penicillin recommended is 300,000 units daily by intramuscular injection. Routine treatment of acute mastoiditis in children by penicillin injections is advocated. Once the penicillin treatment has been instituted, the patient should be examined daily. A rapid improvement in the general condition and temperature is to be expected. In a few days the postauricular swelling should show a reduction in size. When fluctuation is detected, if the abscess remains the same size for 24 hours it should be incised. If otorrhea is present and does not cease in about seven days, the pus should be examined for penicillin-resistant organisms, and appropriate action taken. Penicillin treatment should be continued until the tympanic membrane regains a normal texture and the tympanum contains air. All patients should be followed for about three months to be sure that hearing returns and that recovery is not retarded by factors such as enlarged tonsils and adenoids or sinusitis.—*Journal A.M.A.*

"FREE DIET" OF DIABETIC CHILDREN. (Semaine des Hôpitaux de Paris, 28: 4, Jan. 2, 1952). In reviewing the papers of Scandinavian and English workers, the French authors state that diet free of restrictions has been advocated in the treatment of diabetes mellitus in young children. Those in favor of the "free diet" assert that carbohydrates would be utilized maximally, even if the required amount of insulin should be increased. Free diet in the sense of a diet with avoidance of overfeeding as the only restriction should prevent repetition of hypoglycemic effects and bouts of ketosis. Statistics show that the mortality rate and the incidence of acute and chronic infections have not been higher among the diabetic patients placed on "free diet" than among those on restricted diet. Furthermore, the diabetic child unsubjected to a strictly regulated diet lives in an atmosphere of less mental strain. —*Journal A.M.A.*

BOOK REVIEWS

FLUID BALANCE. By Carl A. Moyer. Cloth. Pp. 173. Price $3.75 Chicago: The Year Book Publishers, Inc., 1952.

This book is an excellent clinical manual on the disturbances of electrolyte and fluid balance. It is written clearly and the material is adequately documented with case presentations. The therapy is presented in a simple, readily workable manner for student, interne and clinician. The chapters, "Acidosis and Alkalosis," "Complications of Parenteral Fluid Therapy" and "Repair Solutions" are well worth reading with care. H. FRUCHTER, M.D.

PATHOLOGY OF THE FETUS AND THE NEWBORN. By Edith L. Potter, M.D., Ph.D., Cloth. Illustrated. Pp. 574. Price $19.00. Chicago: The Year Book Publishers, Inc., 1952.

There are very few books published that can command the praise and attention of this volume. The material found in this book is a reflection of the extensive experience the author has had in this limited but most important field. The excellent pictures form a veritable museum of the pathology of the fetus and newborn. The only improvement possible in this work would have been to use colored pictures for the microscopic tissue sections. The author in the early chapters discusses the general subjects of fetal development, prematurity, birth trauma, infections, etc. This is followed by a consideration of the different organs. Each organ or system is completely presented with a brief but clinically important review of the related embryology followed by the diseases and malformations of the particular organ or system. The illustrations are ample and well chosen. This is a valuable text and should be in every physician's library. MICHAEL A. BRESCIA, M.D.

Lieutenant Stanley T. Adams Medal of Honor

ONE BITING-COLD FEBRUARY NIGHT, Lieutenant Adams was on a bitterly contested hill near Sesim-ni, Korea. Out of the dark earth the silhouettes of some 150 Communist troops rose up against the skyline. Ordering fixed bayonets, the lieutenant, with only 13 men, leaped up and charged furiously against the overwhelming odds. He was knocked down by a bullet. At least three hand grenades actually bounced off his body before exploding nearby. But when Adams and his squad were through, there were only 50 Communists left on the hill—and they were dead.

"Nobody likes to kill," says Stanley Adams. "Nobody likes war. But today the surest way to invite a war is to be weak. You and I know that twice in the last ten years Americans have let their guard down. And the Philippine and Korean graveyards are filled with men who paid the price for it.

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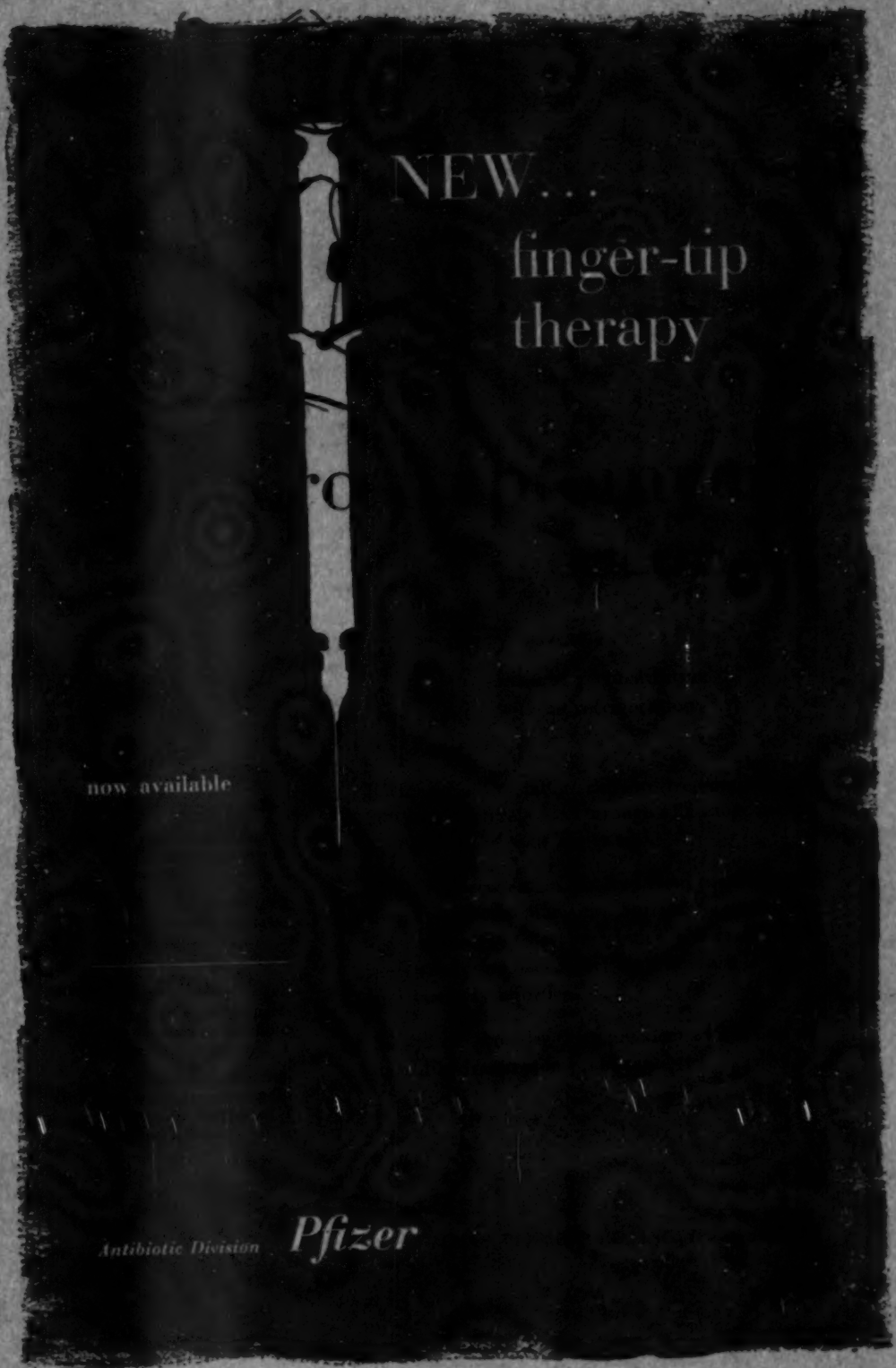
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